UNITED STATES PATENT AND TRADEMARK OFFICE

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10/620,261	07/14/2003	Meng Yao	D/A2584-US-NP XERZ 2 0184	8751

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 August 2007*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>24-29</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>24-29</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

Response to Arguments

1.   Applicant's arguments with respect to claims 28 and 29 have been considered

but are moot in view of the new ground(s) of rejection.

Double Patenting

1.   The nonstatutory double patenting rejection is based on a judicially created
doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the
unjustified or improper timewise extension of the "right to exclude" granted by a patent
and to prevent possible harassment by multiple assignees.   A nonstatutory
obviousness-type double patenting rejection is appropriate where the conflicting claims
are not identical, but at least one examined application claim is not patentably distinct
from the reference claim(s) because the examined application claim is either anticipated
by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140
F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29
USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir.
1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422
F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163
USPQ 644 (CCPA 1969).
        A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d)
may be used to overcome an actual or provisional rejection based on a nonstatutory
double patenting ground provided the conflicting application or patent either is shown to
be commonly owned with this application, or claims an invention made as a result of
activities undertaken within the scope of a joint research agreement.
        Effective January 1, 1994, a registered attorney or agent of record may sign a
terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with
37 CFR 3.73(b).

2.   Claims 24, 25, 27, 28, and 29 are provisionally rejected on the ground of

nonstatutory obviousness-type double patenting as being unpatentable over claims 1

and 4 of copending Application No. 10/620047.

        Regarding claim 24, it is noted that although the conflicting claims are not

identical, they are not patentably distinct from each other because claim 24 of the

instant application is broader than claims 1 and 4 of Application No. '047. The

copending Application No. '047 disclose the following limitations of claim 24 of the

instant application:

A method of adjusting initial CMY data values comprising (see claim 1, lines 6-9;

adding portion of gray and color saturation to CMY values is used to adjust initial CMY

values.):

determining a relative amount of chroma in the initial CMY data values (see claim 1,

lines 4-5);

and producing color saturation adjusted CMY data values as a function of the

relative amount of chroma in the initial CMY data values using (see claim 1, lines 6-13;

The saturation component is based on chroma amount.):

(1) C = C + (SAT_C(C) - C)*(1-RATIO)

(2) M = M + (SAT_M(M)- M)*(1-RATIO)

(3) Y = Y + (SAT_Y(Y)- Y)*(1-RATIO)

(see claim 4 which depends from claim 1. In claim 4, lines 13-15 of the copending

Application No. '047 the following equations are stated:

(1)' C = GRAYBAL_C(C)*RATIO + SAT_C(C)*(1-RATIO)

(2)' M = GRAYBAL_M(M)*RATIO + SAT_M(M)*(1-RATIO)

(3)' C = GRAYBAL_Y(Y)*RATIO + SAT_Y(Y)*(1-RATIO)

Looking at equation (1)', there is gray component and saturation component of the

adjusted C value. The addition of the GRAYBAL component to the equation is a specific

case where the input color values CMY is not gray balanced. If the input is gray-

balanced then GRAYBAL_C(C) => C since no gray balancing adjustment is done to the

C value. Therefore the equation (1)' can be rewritten as:

(1)'' C = C*RATIO + SAT_C(C)*(1-RATIO)

Equation (1) of the instant application above can be rewritten as follows:

(1) C= C+(SAT_C(C))*(1-RATIO) –C*(1-RATIO)

= (C-C*(1-RATIO)) + (SAT_C(C))*(1-RATIO)

= (C*(1-(1-RATIO))) + (SAT_C(C))*(1-RATIO)

= C*(RATIO) + (SAT_C(C))*(1-RATIO)

Therefore equation (1) of claim 24 of the instant application is equivalent to equation (1)'

of claim 4 of the copending Application No. '047 when input is gray-balanced. The

copending Application No. '047 is specific case where the input color value is not gray-

balanced requiring the gray-balanced adjustment GRAYBAL_C(C).)

wherein SAT_C(C), SAT_M(M), and SAT_Y(Y) are maximum color saturation adjusted

values (see claim 4, lines 17-18), and RATIO is a ratio between a minimum of the initial

CMY data values and a maximum of the initial CMY data values (see claim 4, lines 4-6).

Therefore, each limitation of claim 24 in the instant application would result in an

unjustified or improper timewise extension of the "right to exclude" granted by a patent.

Regarding claim 27, copending Application No. '047 discloses a method of

adjusting initial primary color data values, comprising:

determining a relative amount of gray in the initial primary color data values (see claim

1, line 3);

determining a relative amount of chroma in the initial primary color data values (see

claim 1, lines 4-5);

for each of the initial primary color data values, adding a portion of the initial data value

and a portion of a corresponding maximum color saturation adjusted value to produce

respective color saturation adjusted primary color data values (In double patent

rejection of claim 24, equation (1)" was written as follows:

(1)" C = C*RATIO + SAT_C(C)*(1-RATIO)

Further in claim 4, line 2-4 and lines 7-8 of copending Application No. '047, RATIO is the

portion of gray amount and 1-RATIO is portion of the chroma amount respectively.

Therefore the adjusted C value has a gray portion and chroma portion.

);

wherein the portion of the initial data value is a function of the relative amount of gray

and the portion of the maximum saturation adjusted value is a function of the relative

amount of chroma (Further in claim 4, line 2-4 and lines 7-8 of copending Application

No. '047, RATIO is the portion of gray amount and 1-RATIO is portion of the chroma

amount respectively.);

wherein determining a relative amount of gray comprises determining a relative amount

of gray using:

RATIO = MIN(C, M, Y)/MAX(C, M, Y)

wherein MIN(C, M, Y) is a minimum of the initial CMY data values and MAX(C, M, Y) is

a maximum of the initial CMY data values (see claim 4, lines 2-6);

wherein determining a relative amount of chroma comprises calculating (1 - RATIO)

(see claim 4, lines 7-8); and

wherein adding a portion of the initial data value and a portion of a corresponding

maximum color saturation adjusted value to produce respective color saturation

adjusted primary color data values comprises:

C = C*RATIO + SAT_C(C)*(1-RATIO)

M = M*RATIO + SAT_M(M)*(1-RATIO)

Y = Y*RATIO + SAT_Y(Y)*(1-RATIO)

(see claim 4 which depends from claim 1. In claim 4, lines 13-15 of the copending

Application No. '047 the following equations are stated:

  (1)' C = GRAYBAL_C(C)*RATIO + SAT_C(C)*(1-RATIO)

  (2)' M = GRAYBAL_M(M)*RATIO + SAT_M(M)*(1-RATIO)

  (3)' C = GRAYBAL_Y(Y)*RATIO + SAT_Y(Y)*(1-RATIO)

Looking at equation (1)', there is gray component and saturation component of the

adjusted C value. The addition of the GRAYBAL component to the equation is a specific

case where the input color values CMY is not gray balanced. If the input is gray-

balanced then GRAYBAL_C(C) => C since no gray balancing adjustment is done to the

C value. Therefore the equation (1)' can be rewritten as:

 (1)" C = C*RATIO + SAT_C(C)*(1-RATIO). The same applies to the other components

M and Y.

)

wherein SAT_C(C), SAT_M(M), and SAT_Y(Y) are maximum color saturation adjusted

values (see claim 4, lines 17-18).

Regarding claim 28, copending Application No. '047 discloses a method of

adjusting initial CMY data values comprising:

determining a relative amount of chroma in the initial CMY data values (see claim 4,

lines 7-8);

and

gray balancing and color saturation adjusting the initial CMY data values in such a

manner that more chroma results in more saturation adjustment and less gray balance

adjustment of the initial CMY data values (see claim 4, lines 7-15; The chroma is

defined by 1-RATIO. More chroma means that more weight is put on the SAT_C(C)

component which means more saturation adjustment. If 1-RATIO is bigger that means

RATIO is getting smaller which means that the GRAYBAL_C(C) component has less

weight.), while less chroma results in less saturation adjustment and more gray balance

adjustment of the initial CMY data values (see claim 4, lines 7-15; The chroma is

defined by 1-RATIO. Less chroma means that less weight is put on the SAT_C(C)

component which means less saturation adjustment. If 1-RATIO is smaller that means

RATIO is getting bigger which means that the GRAYBAL_C(C) component has more

weight.).

Regarding claim 29, copending Application No. '047 discloses the method of

claim 28, wherein gray balancing and color saturation adjusting the initial CMY data

values comprises gray balancing and color saturation adjusting the initial CMY data

values using (see claim 4, lines 9-12):

$C = GRAYBAL\_C(C)*RATIO + SAT\_C(C)*(1-RATIO)$

$M = GRAYBAL\_M(M)*RATIO + SAT\_M(M)*(1-RATIO)$

$Y = GRAYBAL\_M(Y)*RATIO + SAT\_Y(Y)*(1-RATIO)$ (see claim 4, lines 13-15)

wherein GRAYBAL_C(C), GRAYBAL_M(M) and GRAYBAL_Y(Y) are maximum gray

balance adjusted values; RATIO is a ratio between a minimum of the initial CMY data

values and a maximum of the initial CMY data values; and SAT_C(C), SAT_M(M), and

SAT_Y(Y) are maximum color saturation adjusted values (see claim 4, lines 4-6, 16-18).

This is a <u>provisional</u> obviousness-type double patenting rejection because the

conflicting claims have not in fact been patented.

Regarding claim 25, see the double patenting rejection of claim 24.

3.   Claim 26 is provisionally rejected on the ground of nonstatutory obviousness-type

double patenting as being unpatentable over claims 1 and 4 of copending Application

No. 10/620047 in view of U.S. Patent No. 5539540 to Spaulding et al.

Regarding claim 26, copending Application No. '047 discloses a method of

adjusting initial primary color data values (see claim 1, lines 6-9; adding portion of gray

and color saturation to CMY values is used to adjust initial CMY values since CMY are

primary values), comprising:

wherein producing color saturation adjusted primary color data comprises: for each of

the initial primary color data values, producing a color saturation adjusted primary color

data value by adding to the initial primary color data value (In double patenting rejection

of claim 24, it was concluded that the equations of claim 24 is equivalent to the

equations of claim 4 of copending Application No. '047. The equations in claim 24 are

as follows:

(1) $C = C + (SAT\_C(C) - C)*(1-RATIO)$

(2) $M = M + (SAT\_M(M)- M)*(1-RATIO)$

(3) $Y = Y + (SAT\_Y(Y)- Y)*(1-RATIO)$.

The initial primary values of C, M, Y are added to the adjustment values of (SAT_C(C) -

C)*(1-RATIO), (SAT_M(M)- M)*(1-RATIO), and (SAT_Y(Y)- Y)*(1-RATIO) respectively.)

a product of (1) a difference between a maximum saturation adjusted value for the

primary color data value and the original primary color data value ("(SAT_C(C) - C)".),

and (2) one minus a ratio between a minimum of the initial primary color data values

and a maximum of the initial primary color data values ("(1-RATIO)"). However

copending Application No. '047 does not disclose

a) determining whether the initial primary color data values are all zero;

b) determining whether the initial primary color data values are equal; and

c) producing color saturation adjusted primary color data values if the initial primary

color data values are not all zero and if the initial primary color data values are not

equal.

Spaulding et al '540 discloses

a) determining whether the initial primary color data values are all zero (column 8, lines

4-10; Neutral colors include colors where all color component values are the same so

that it will include the case of all zero component values.);

b) determining whether the initial primary color data values are equal (column 8, lines 4-

10; Neutral colors include colors where all color component values are the same.); and

c) producing color saturation adjusted primary color data values if the initial primary

color data values are not all zero and if the initial primary color data values are not equal

(column 8, lines 8-16; column 9, lines 19-31; column 10, lines 33-46; Box 106 works

with only saturated colors as shown in Figure 12, step 106, 110. Saturated colors

cannot have all zero component values and cannot have equal component values.).

Application No. 10/620047 and Spaulding et al '540 are combinable because

they are in the similar problem area of color adjustment.

At the time of the invention, it would have been obvious to a person of ordinary

skill in the art to combine the color correction system of Spaulding et al '540 with the

system of Application No. '047 to implement color adjustment for non-zero and non-

equal color component values.

The motivation to combine the reference is clear because the system of

Spaulding et al '540 is effective with processing and preserving saturation of color data

(column 3, lines 65-67; column 4, lines 1-18).

This is a provisional obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

5.   Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S.

Patent No. 7042521 to Kim in view of U.S. Patent No. 5929874 to Barton et al.

Regarding claim 28, Kim '521 discloses a method of adjusting initial color data

values comprising:

determining a relative amount of chroma in the initial color data values (column 3, lines

31-43; The color tone vector C_T is the relative amount of chroma.);

and

gray balancing and color saturation adjusting the initial color data values in

such a manner that more chroma results in more saturation adjustment and less gray

balance adjustment of the initial color data values (column 4, lines 15-29; The

parameter α is related to color information ($\alpha \rightarrow 0$ corresponds to gray and as $\alpha \rightarrow 1$

corresponds to color; column 5, lines 59-67; column 6, lines 1-30; The $Y(1-\alpha_g)$

corresponds to gray adjustment. For $0 < \alpha < 1$ $\alpha_g \rightarrow \alpha$. Therefore as α becomes bigger

toward 1 (color); The $\alpha^* C_T$ becomes bigger and the gray adjusted data $Y(1-\alpha)$ becomes

smaller.), while less chroma results in less saturation adjustment and more gray

balance adjustment of the initial color data values (For $0 < \alpha < 1$ $\alpha_g \rightarrow \alpha$. Therefore as α

becomes smaller toward 0 (gray), The gray adjusted data $Y(1-\alpha)$ becomes bigger and

the color saturation component $\alpha^* C_T$ becomes smaller.).

However Kim '521 does not disclose wherein the input color is CMY values.

Barton et al '874 discloses wherein the input color values to be adjusted are CMY

values (column 7, lines 27-41).

Kim '521 and Barton et al '874 are combinable because they are in the similar

problem area of color adjustment.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the CMY color system of Barton et al '874 with the system of Kim '521 to implement color adjustment in the CMY color system.

The motivation to combine the reference is clear because Barton et al '874 teaches that the CMY color system is convenient for the adjustment process (column 3, lines 25-31; column 7, lines 60-63).

Other Prior Art Cited

6.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent Application Publication No. US 2002/0051214 A1 to Yamamoto discloses image scanning system.

U.S. Patent Application Publication No. US 2007/0229868 A1 to Kanai discloses image processor with color transformation.

U.S. Patent Application Publication No. US 2002/0114513 A1 to Hirao discloses image processor based on saturation information.

U.S. Patent Application Publication No. US 2004/0070776 A1 to Yao et al disclose gray balancing.

U.S. Patent No. 5041866 to Imoto discloses density adjusting system.

U.S. Patent No. 5231504 to Magee discloses saturation based color processing system.

U.S. Patent No. 4812903 to Wagensonner et al discloses image enhancing system.

U.S. Patent No. 6734899 to Okamoto discloses gray balance/color correction system.

U.S. Patent No. 7084880 to Kimura et al disclose display system.

U.S. Patent No. 5710824 to Mongeon discloses printer system.

U.S. Patent No. 5790282 to Hayashi et al disclose saturation adjustment for color data.

EP 1398956 A1 to Lammens et al disclose calibration system.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Beniyam Menberu whose telephone number is (571) 272-7465. The examiner can normally be reached on 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Aung Moe can be reached on (571) 272-7314. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Any inquiry of a general nature or relating to the status of this application or
proceeding should be directed to the customer service office whose telephone number
is (571) 272-2600. The group receptionist number for TC 2600 is (571) 272-2600.

Information regarding the status of an application may be obtained from the
Patent Application Information Retrieval (PAIR) system. Status information for published
applications may be obtained from either Private PAIR or Public PAIR. Status
information for unpublished applications is available through Private PAIR only.
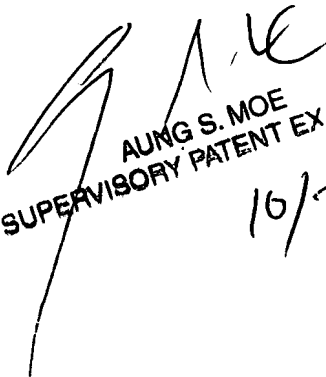
For more information about the PAIR system, see <http://pair-direct.uspto.gov/>.
Should you have questions on access to the Private PAIR system, contact the
Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner

Beniyam Menberu

BM

10/27/2007

AUNG S. MOE
SUPERVISORY PATENT EXAMINER.
10/29/07